2010

VCNP Livestock Grazing Report

Photo: TK Thompson

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Executive Summary

The Valles Caldera Trust manages for the multiple use and sustained yield of renewable resources including timber and forage. In FY 2010, for the second consecutive year, the Trust hosted a multi-faceted grazing program conducted by New Mexico State University Cooperative Extension Service and the New Mexico Beef Cattle Performance Association. The university continued operating three small, multiple objective educational programs on the Preserve designed to address animal health and ecological issues important in the regional area.

This was the second year that the grazing program operated under the forage Environmental Assessment. In December of 2008, the Trust made an Environmental Assessment available for a public review and comment period ending February 2, 2009. The EA considered actions and environmental consequences of the proposed Multiple Use and Sustained Yield of Forage Resources on the Valles Caldera National Preserve. The Trust issued a "Finding of No Significant Impact" on the implementation of a grazing program.

During the 2010 grazing season, while the total number fluctuated slightly, about 600 head of cattle were grazed in large pastures away from riparian areas and away from the main recreation programs. In total, the Trust received $32,028 in grazing fees during the 2010 grazing season. Cattle had a minimal impact on the recreation programs again this year due to a concerted effort to keep cattle out of primary recreation areas. The program involved local cattle growers, included an extension and research component, a conservation program which allowed the resting of tribal and private land, and again culminated in a successful on-site bull sale.

Introduction

The lands of the Valles Caldera National Preserve (VCNP) have been grazed for as long as man has tended domestic livestock. The name "Valles Caldera" comes from a geologic term for the unique collapsed volcanic dome. The ranch was long known as Baca Location 1.

The 89,000+ acre Valles Caldera National Preserve was created by the federal government in 2000. A wholly-owned federal corporation, guided by a Board of Trustees, the Preserve represents a new approach for managing public lands. The Valles Caldera Preservation Act of 2000 directs the Trust to operate as a working ranch, while protecting and preserving the health of the land and its resources. Multiple use and sustained yield of the renewable resources and public use of and access to the Preserve for recreation are also among the mandates in the Act.

In FY 2010, for the second consecutive year, the Trust hosted a multi-faceted grazing program conducted by New Mexico State University Cooperative Extension Service and the New Mexico Beef Cattle Performance Association. During the 2010 grazing season, roughly 600 head were brought onto the Preserve on a four month grazing schedule. The Trust received $32,028 in grazing fees.

Based on the findings and successes of the 2009 livestock program, the Valles Caldera Trust opted to continue the relationship with NMSU through a multi-year agreement. The following news release went out in February of 2010:

Valles Caldera Trust and New Mexico State University Encore Livestock Program for 2010

Agreement Builds on First Year Success

***Jemez Springs, NM**- The extremely successful Livestock and Range Improvement Program operated by New Mexico State University in 2009 on the Valles Caldera National Preserve created almost as many questions as it answered last year, and will be continued for 2010 according to Gary Bratcher, Executive Director for the Trust. "We feel that tremendous potential exists for scientific, research, and extension activities to be expanded in the programs designed and managed by New Mexico State University to benefit the regional livestock industry and the economic interests of northern New Mexico. Additionally, we expect the technical assistance provided the Trust through an agreement with NMSU and private sector participation in their programs will assist us in identifying commercial opportunities that will be of direct economic benefit to the Preserve. At the same time, we are assuring the public that our livestock program will not be detrimental to the proper stewardship of the property."*

The new lease service agreement with NMSU will be for a four-year period with grazing rates, herd size, and services re-negotiated annually. This will allow NMSU and the Trust sufficient flexibility to adjust the program to changing range, weather and forage conditions. It will also provide certainty that seamless data collection and analyses will continue over an extended period of time during variable conditions in order to validate the information gathered.

The 2009 program combined genetic improvement of breeding lines to address Brisket Disease in the beef cattle industry and a range conservation and restoration strategy to provide a direct benefit to ranchers from Jemez Pueblo and Sandoval County who improved their operations and restored their own range lands. "The shift to herd improvement and range conservation programs clearly had very positive impacts on the

regional livestock industry and the Preserve" said Dennis Trujillo, General Manager of Preserve Operations. "But we can make even greater improvements by utilizing the resources of New Mexico State and expanding research activities on issues such as stocking rates, forage consumption, sensitive habitat protection, proprietary feed and mineral supplements, and beef marketing."

Data collected from 2009 was valuable and can serve as a foundation on which to expand to more programs through seamless continuation of the research program established last summer. "NMSU made excellent progress on the initial research involved in high elevation bull evaluation," said Valles Caldera Trust Science and Education Director Dr. Bob Parmenter. "But this type of research, as is the case with most research, requires longer, more detailed involvement."

Determining Range Conditions and Grazing Capacities

Before each VCNP livestock grazing season, a range readiness report is prepared to assess the number of cattle that will be allowed to graze at the Preserve. The range readiness report was prepared and presented to the public for the 2010 grazing season.

A copy of the report can be found at:

http://www.vallescaldera.gov/ranching/grazing/RRRep.aspx

A multi-disciplinary team of resource managers (Trust biologists, BLM range specialists, USDA ARS range scientists, university scientists, private consultants and the public) assessed rangeland conditions in the spring, prior to livestock entering the Preserve. The assessments included current and forecasted climate conditions (especially precipitation and temperature), soil moisture, hydrologic data from stream gauges on the Jemez River, standing crop biomass (available forage) and stubble height of various grass species (an indication of recent/current grazing pressure from elk). Livestock

carrying capacity was calculated in animal units (AUs) and animal unit months (AUMs) based on the assessment data.

In previous years, cattle stocking rates on the Preserve have been adjusted upward or downward depending on resource conditions. For example, the 2008 range readiness reports found excellent range conditions that would support the maximum allowable numbers of steers (2,000) under the previously existing environmental assessment. In contrast, the drought of 2005-2006 resulted in a very poor range conditions in the spring of 2006, which resulted in the decision to suspend livestock grazing for the summer of 2006. The process of formal, multi-disciplinary range readiness assessments each spring provide a science-based adaptive management tool for the livestock operations program.

The initial number of head allowed on the Preserve is determined using these data intensive field assessments. The purpose of this type of range assessment is to determine the potential ecological outcome of the proposed livestock grazing program on the VCNP. In addition, a report on projected climate conditions for the summer of 2010 was provided for the purpose of anticipating possible temperature levels and precipitation amounts in regard to sustained production of forage for livestock and wildlife.

The results of the forage assessments indicated that spring standing crop biomass was lower than the same time last year (2009). Differences in standing crop ranged from 10% to 25% less than in 2009. The results of the May, 2010, sampling was as follows:

Pasture habitat type	Standing Crop Biomass (pounds/acre)				
	2006	2007	2008	2009	2010
Grazeable Woodland	547	1,088	698	1,042	801
Mountain Meadow	894	1,892	1,364	2,329	2,114
Mountain Valley	1,010	1,332	833	1,768	1,363
Riparian	988	1,840	1,300	2,274	1,782

Livestock Stocking Levels Model

Based on forage data collected from 2002 – 2008, forage utilization and elk/livestock abundance was estimated for five levels of precipitation and forage production, ranging from historic high levels to low levels. Average capacity for the VCNP is 541 Animal Units for 4 months of grazing, in addition to an elk herd estimated by the NM Department of Game and Fish of 3,000 animals. The forage allocation calculations were based on total utilization by elk and livestock of 40% of available forage production, with 60% of the forage remaining behind for ecosystem services (soil erosion prevention, carbon sequestration, and health of forage plants).

The analyses of forage availability, precipitation, soil moisture, stream flow, and stock tank water content for spring, 2010, indicated that spring forage amounts and soil moisture levels were near average, while cumulative precipitation and stream flow were near or below average, respectively. Grazing by resident elk during the spring of 2010 was still within the ~40% utilization level targeted by the VCT managers. Stock tank water capacities were good. The climate forecast for summer in northern New Mexico called for above-average temperatures, with average monsoonal precipitation.

Therefore, based on these measurements, the potential stocking rate for livestock on the VCNP was reported to be near average levels. This indicated that the VCNP could support at least the 541 Animal Units sustainable in an average year.

However, monitoring data from the pastures utilized during the grazing season of 2009, which were stocked with livestock at the average capacity of ~540 head, revealed that very little forage utilization occurred. Data showed that only 5-9% utilization occurred in the Valle Seco and the Rincon de los Soldados. Given the Trust's goal of utilizing up to 40% of the available forage, it appeared that the herd stocking level could be increased somewhat, given that 2010 appears to be an average year in terms of forage, precipitation and soil moisture. The estimate for average capacity of livestock (541 head) depends on the accuracy of the size of the elk herd (estimated at 3,000 elk); if this estimate is too high, then the average capacity for livestock can increase. The NM Department of Game and Fish has an estimated range of elk herd size of 2,500-3,500 animals. If the herd size is only 2,500 elk, then the Preserve could support several hundred (300-400) more head of livestock. Given the very low forage utilization observed in 2009, it appeared that the Preserve could support more livestock in an average year. As such, the stocking density was increased to 750 head of livestock for 2010.

Lease Service Agreement

Based on the findings and successes of the 2009 livestock program, and the ability of NMSU to meet all factors associated with a successful grazing program, the Valles Caldera Trust opted to continue the relationship with NMSU through a multi-year agreement termed a "lease service agreement". The purpose of the lease service agreement is for the Trust to permit livestock activities, research, and extension services to occur on the Valles Caldera National Preserve under authorized conditions for the next four years with a required annual renewal. The grazing program is meeting the mandate to continue the operation of the Preserve as a working ranch, consistent with the protection and preservation of the scientific, scenic, geologic, watershed, fish, wildlife, historic, cultural, and recreational values of the Preserve; the multiple use and sustained yield of the Preserve's renewable resources; and public use and access to the Preserve for recreation.

As part of developing the lease service agreement, there were several factors which are considered critical in developing a successful grazing program at the Preserve: (1) The grazing program should provide the Trust with the greatest flexibility to respond to varying environmental and market conditions, to meet multiple goals and to incorporate an experimental management style that mixes elements of public and private administration, (2) The program should be aimed at reducing the Trust's administrative costs and efforts, (3) Maximizing the total number of head on the Preserve may not necessarily generate the most revenue for the Trust. Operating smaller numbers of livestock, while at the same time seeking to develop programs that increase revenue through other activities, might prove to be a better long-term strategy for economic return. These activities could include such things as smaller numbers of higher value animals (such as the high elevation bull/heifer programs), fees and grants received for educational programs, and conservation stewardship programs, (4) The livestock, elk, and other consumers of forage are allocated 40% of the Preserve's forage on suitable land. This allocation can be calculated using various methods and does allow for different grazing strategies on the Preserve, and (5) The program should provide for the ability to respond to changing conditions, future development or changes on the Preserve, balance all the goals from the Act, and address the competing demands from the public.

It was believed that the lease service agreement was warranted by NMSU's past successes in managing this program and the potential long-term benefits to the Trust and the Preserve. A continuation of the relationship with NMSU should permit continued research and development opportunities focused on High Altitude Disease (HAD) in beef cattle, as well as an expansion the educational and extension services with local beef cattle producers.

Specifically, the Lease service agreement included the following deliverables:

- Value added options, such as educational and extension seminars associated with ranching or range management, or workshops and demonstrations of ranching activities such as herding, and grading cattle should be developed by the operator. These value added options must be approved by the Trust prior to being conducted.
- A research component must be included as part of the grazing program. This could include such topics as investigating stocking rates, forage consumption, high altitude health problems, sensitive habitat protection, and beef marketing. Specifically, the initiation of the Top of Valle High Altitude Performance Test for registered bulls and heifers unveiled the VCNP as the venue for the nation's highest altitude performance test on a grass-only diet. By design, the high altitude performance test sought to define genetic and management variables contributing to cattle's susceptibility to HAD, an often fatal hypertension syndrome that costs the U.S. beef cattle industry more than $60 million annually. During the 2009 program, a national expert on bovine high mountain disease, Dr. Tim Holt, a Colorado State University assistant professor of veterinary medicine and biomedical science, performed the pulmonary arterial pressure tests on the bulls to evaluate their individual adaptation to the high altitude. This aspect of the grazing program brought the Valles Caldera grazing program national acclaim on the basis of developing practical implications to combat this disease that plagues three to five percent of the more than 1 million cattle grazing altitudes above 6000 feet. The public sale offering of the top performing bulls and heifers presenting the lowest risk to HAD at the conclusion of the program capped-off this successful producer outreach and research endeavor at the VCNP. These research components must be approved by the Trust prior to being conducted.

- The operator is encouraged to involve as many local cattle producers as possible. The program should include extension type services to these producers as well as a conservation stewardship component. The inclusion of the Jemez Pueblo Livestock Association provided an opportunity to demonstrate a cooperative beef cattle management strategy. Utilizing a series of best management practices for small-scale beef producers in the Southwest, the program emphasized natural resource protection and improved marketing strategies. Participating producers adopted a comprehensive animal identification program and received hands-on instruction focused on low-stress cattle handling and effective administration of vaccinations. The four year program should involve as many local producers as feasible.
- The operator is required to help the Trust staff with range management and monitoring assistance during the grazing season. When possible, the operator should provide assistance in other grazing related projects such as wildlife monitoring and forage consumption, nutrient analysis, predator studies, and forage related data collection to enhance the understanding of the overall forage consumption and composition on the Preserve.
- The operator will provide suggestions for future revenue generating activities on the Preserve such as livestock sales and mineral block or high altitude feed supplement development and sales. An extension of the current agreement shall permit continued research and development opportunities focused on HAD in beef cattle, that will ultimately benefit the industry and will benefit future revenue generating activities for the Trust.

2010 Grazing Season

The total number of animals was limited to 750 animal units (cow/calf pairs and mature bulls equal 1.0 A.U.s; yearling heifers and yearling bulls equal 0.7 A.U.s.). The actual number of animals that grazed varied slightly during the season but remained around 567 AUs (600 head). The program conducted by Dr. Manny Encinias of NMSU, in partnership with NMBCPA established the framework for providing high altitude bulls, replacement heifers, and cow-calf pairs in the 2010 program. Specifically, the program included the following components:

High Altitude Bull Evaluation Program –yearling bulls grazed on the Preserve this summer and underwent a variety of tests before being used for breeding. Most important of these tests is the Pulmonary Arterial Pressure (PAP). The PAP test provides an indicator of the animal's resistance to Brisket Disease. Brisket Disease, also known as High Mountain Disease or Pulmonary Hypertension, is one of the Rocky Mountain region's most costly diseases. The disease is the result of elevated pulmonary arterial pressures or pulmonary hypertension and generally affects animals less than one year of age residing at an elevation above 5000 feet.

Brisket Disease is caused primarily by an oxygen shortage; oxygen availability reduces considerably at higher elevations causing increased resistance to blood flow in small arteries in the lungs. The heart compensates for higher resistance by stretching and building up a higher pressure. The pressure can continue to build up until fluids leak out of the blood stream and collect in the chest cavity, the brisket, and other places. Eventually, the heart wears out and stops beating.

Susceptibility or resistance to brisket disease is an inheritable trait. The goal of this program was to identify bulls with the greatest resistance to brisket and promote that genetic trait, adding value to the animal and reducing the incidence of the disease.

NMSU also measured the weight gain of these bulls. Gaining weight is the heart of the cattle industry. Identifying bulls that are good at gaining weight as well as resistant to

brisket adds additional value to these animals. The bull program concluded the season with another "Top of the Valle" bull sale, where the top ranking bulls from the program were sold at a silent auction held at the Valle Grande horse barn.

Replacement Heifer Program – For this program, cattle producers from New Mexico brought in artificially inseminated heifers (female calf that has not been previously bred) for grazing and breeding. They were bred with bulls who are likely (through genetics) to produce a calf who will be small at birth but should gain weight nicely in the first year. When a young cow can give birth to a small calf her first delivery it reduces the likelihood of complications occurring during birthing. This not only protects her during this first birth but can lead to an overall improvement in her reproductive health through her life.

Cow-Calf Pairs Program – For this program, local cattle producers brought in cows and their calves for grazing on the Preserve. Both the mother cows and their calves benefited from the abundant forage and gained significant weight while on the Preserve.

Conservation Stewardship Program – Under this program NMSU supported Jemez Pueblo Livestock Association in resting and restoring tribal lands through summer grazing of their small cow-calf herd.

Workshops/Seminars – NMSU hosted several informal workshops with the producers instructing them on animal health, livestock and range management.

The various cattle programs (bulls, heifers, and cow/calf) grazed in different pastures to keep them physically separated. The bulls were kept in the Horse paddock pastures in the Valle Grande (no access to the East Fork of the Jemez River), the heifers grazed in the Rincon, the Posos, and in the horse pastures near headquarters, and the cow-calf pairs were grazed in the Seco/San Luis/Santa Rosa pastures south of the Valle San Antonio and San Antonio Creek. There were several, short-term occasions, lasting less than two weeks, during the beginning and end of the season that some of the cattle

had to be moved through the San Antonio or Valle Grande, but these were short-term endeavors while the cattle were being moved to a different area. At various times, some of the cattle from the Posos pasture did find their way to the Valle Toledo and were relocated as soon as possible.

The average daily weight gain (ADG) for the coming two year old bulls in the high elevation program was 2.86 lbs. For the livestock in the cow/calf operation, the ADG of mature cows was 2.65 lbs and for calves 2.42 lbs.

2010 Grazing Plan

This year's program was conducted using a grazing plan prepared by Dr. Manny Encinias and approved by Trust staff. The plan stated:

"Top of the Valle" Bull Development Program

General:

All bulls will graze the horse paddocks for the duration of the grazing season. Based on the forage allocation data set forth by the Preserve Scientist, each horse paddock can sustain 5 (dry year) to 15 (wet year) animal units for the 120-day season in 2010.

Specific Details:

- Forty-five yearling bulls, representing the Angus, Red Angus, Angus Plus, Hereford, Charolais, and Beefmaster breeds will be allocated by breeder in one of 5 horse paddocks for the duration of the grazing season. Four of the five paddocks will be split in half (north to south) with a temporary fence to accommodate bull lots (less than 10 head) enrolled by producers. In the case adequate forage does not permit grazing of the assigned paddock, bulls will be rotated to an unoccupied pasture. The Field Trap and grass around horse barn

may become an alternative grazing pasture for the yearling bulls and bulls associated with the Cow-Calf program. Based on the forage allocation set forth by the Preserve Scientist, the Field Trap can sustain 9 (dry year) to 37 (wet year) animals units for the 120-day season in 2010.

Heifer Development and Artificial Insemination Program

General:

Yearling replacement heifers will graze the Lake Trap, and Rincon pastures, as well as the horse traps for the duration of the grazing season. Based on the forage allocation data set forth by the Preserve Scientist, the Lake Trap can sustain 62 (dry year) to 121 (wet year) and the Rincon pasture can sustain 119 (dry year) to 209 (wet year) animal units for the 120-day season in 2010. In the case adequate forage does not permit grazing of the assigned paddock, heifers will be rotated to an unoccupied pasture. The Field Trap may become an alternative grazing pasture for the heifers. Based on the forage allocation set forth by the Preserve Scientist, the Field Trap can sustain 9 (dry year) to 37 (wet year) animals units for the 120-day season in 2010.

Specific Details:

- One hundred seventeen yearling heifers and commercial cows will graze the Lake Trap for a majority of the 120-day grazing season with the remainder in either the Field. These cattle are part of the artificial insemination option offered in this year's program. Three clean up bulls will be used after artificial insemination period.
- Thirty, two and three year old Angus cows with calves will graze portions of the south horse traps for the grazing season as part of the artificial insemination program and grazing utilization demonstration. A single clean up bull will be used after artificial insemination period.

- Twenty-three Angus heifers and a single yearling Angus bull will graze portions of the north horse traps for approximately 60 days of the 120-day grazing season. After 60 days single yearling Angus Bull will be removed and an additional 13 Angus heifers will be grazed for the remaining 60 days as part of the artificial insemination and grazing utilization demonstration.
- Sixty-seven yearling Angus heifers and 4 yearling Angus bulls will graze the Rincon pasture for the 120-day grazing season to meet forage allocation guidelines set forth by the Trust.

Regional Cow-Calf Outreach and Grazing Program

General:

All cow-calf pairs will graze the Valle Seco, Santa Rosa, and San Luis pastures for the duration of the grazing season. Based on the forage allocation data set forth by the Preserve Scientist, the Valle Seco, Santa Rosa, and San Luis can sustain 353 (dry year) to 560 (wet year) animal units for the 120-day season in 2010. Based on the forage allocation data set forth by the Preserve Scientist, the Posos pasture can sustain 126 (dry year) to 196 (wet year) animal units for the 120-day season in 2010.

Specific Details:

- Approximately 214 cow-calf pairs and 13 bulls will graze the Valle Seco, Santa Rosa, and San Luis pastures for the 120-day grazing season to meet forage allocation guidelines set forth by the Trust.
- Once cross-fencing can be accomplished in the Upper San Antonio Bench and Posos pastures, these pastures will be filled with additional cattle. Approximately, 128 cow-calf pairs and 5 herd bulls will graze the Posos pasture.

VCNP Range Management and Monitoring Efforts

Several methods of monitoring were employed by Trust staff to gather information about the grazing conditions before, during, and after the grazing season.

One of the methods of monitoring rangeland health during the grazing season used techniques recommended by the USDA's Natural Resources Conservation Services (NRCS). In an attempt to standardize the monitoring of the cattle program on the ground during the grazing season, records of the cattle program and range conditions were kept and assessed using the USDA NRCS, Grazing Recordbook: A field Guide for Range, Forage and Livestock Programs. Part of this process involved conducting basic pasture utilization surveys.

Surveys were conducted in (1) the east horse Pastures where 30 cows/calves grazed, (2) the west horse pasture where 23 heifers and one bull grazed, (3) the Lake/Field traps, where about 117 yearling heifers and commercial cows were grazed, (4) the horse paddocks where 45 yearling bulls, (5) Seco/Santa Rosa/San Luis pastures, where 214 cow/calf pairs and 13 bulls were kept during the grazing season, (6) the Rincon Pasture, where 67 yearling heifers and 4 bulls grazed, and (7) the Posos where about 120 cow/calf pairs grazed.

The methods of the NRCS Rangeland Utilization Survey consist of selecting key areas in the pastures that are grazed. Step transects are done by walking in one direction and at every second step, stopping and estimating which Use Class is apparent for the key species nearest your foot. The Use Class is the amount of annual growth removed by grazing animals. At least 100 points are taken per survey. The Use Classes are described by NRCS and include 0-15% (none), 16-35% (light), 66-80% (heavy), 80-100% (severe). For example "None" is described as having very little use of key forage plants with only choice areas or choice plants being foraged. "Light" is described as having key forage plants that are lightly to moderately used, with practically no use of low-value plants, with most of the accessible range shows grazing. "Moderate" means

that key forage plants are used about right for the season; with some use of low value forage plants and all fully accessible range areas are grazed. Some trampling may be evident.

Table 1 includes the results from these field assessments.

Table 1. 2010 Grazing Season Utilization for VCNP Pastures Using USDA NRCS Use Class.

Pasture	Beginning of Season (June)	Mid Season (August)	End of Season (October)
East Horse Pasture	**8.0 %** {0-15% (none)}	**15.37%** 16-35% (light)	**40.89%** 36-65% (moderate)
East Horse Pasture (Control)	**8.0 %** {0-15% (none)}	**8.0 %** {0-15% (none)}	**8.0 %** {0-15% (none)}
West Horse Pasture	**8.0 %** {0-15% (none)}	**19.04%** 16-35% (light)	**49.57%** 36-65% (moderate)
West Horse Pasture (Control)	**8.0 %** {0-15% (none)}	**8.0 %** {0-15% (none)}	**8.0 %** {0-15% (none)}
Lake/Field Trap	**8.0 %** {0-15% (none)}	**13.17%** {0-15% (none)}	**27.57%** 16-35% (light)
Lake/Field Trap (Control)	**8.0 %** {0-15% (none)}	**8.0 %** {0-15% (none)}	**8.0 %** {0-15% (none)}
Horse Paddocks	**8.0 %** {0-15% (none)}	**34.81%** 16-35% (light)	**51.36%** 36-65% (moderate)
Horse Paddocks (Control)	**8.0 %** {0-15% (none)}	**8.0 %** {0-15% (none)}	**8.0 %** {0-15% (none)}
Seco/Santa Rosa/San Luis	**8.0 %** {0-15% (none)}	**11.67%** {0-15% (none)}	**22.69%** {16-35% (light)}

Pasture (cont.)	Beginning of Season (June) (cont.)	Mid Season (August) (cont.)	End of Season (October) (cont.)
Seco/Santa Rosa/San Luis (Control)	**8.0 %** {0-15% (none)}	**8.0 %** {0-15% (none)}	**8.0 %** {0-15% (none)}
Rincon	**8.0 %** {0-15% (none)}	**12.46%** {0-15% (none)}	**26.89%** 16-35% (light)
Rincon (Control)	**8.0 %** {0-15% (none)}	**8.0 %** {0-15% (none)}	**8.0 %** {0-15% (none)}
Posos	**8.0 %** {0-15% (none)}	**11.59%** {0-15% (none)}	**26.23%** 16-35% (light)
Posos (Control)	**8.0 %** {0-15% (none)}	**8.0 %** {0-15% (none)}	**8.0 %** {0-15% (none)}

East Horse Pastures

Results indicated that the control site for the East Horse pasture remained in the 0-15% (none) range for the entire grazing season, while the East Horse pasture itself, where about 30 head of cattle grazed went from a 15.37% mid-season utilization in July to a 40.89% utilization total for the end of the season . This moved it up to the NRCS 36-65% (moderate) utilization level.

West Horse Pastures

Results indicated that the control site for the west horse pasture remained in the 0-15% (none) range for the entire grazing season, while the west horse pasture itself, where about 25 head of cattle grazed went from a 19.04% mid-season utilization in July to a 49.57% utilization total for the end of the season . This moved it up to the NRCS 36-65% (moderate) utilization level.

Lake/Field Trap Pastures

Results indicated that the control site for the Lake/Field Trap pastures remained in the 0-15% (none) range during the entire grazing season. The Lake/Field pastures where about 120 head of cattle grazed went from a 13.77% mid-season utilization in July to a 27.57% utilization total for the end of the season. This moved it up to the NRCS 16-35% (light) utilization level.

Horse paddocks

Results indicated that the control site for the Horse paddock pasture remained in the 0-15% (none) range for the entire grazing season, while the horse paddocks pasture itself, where 45 head of cattle grazed went from a 34.81% mid-season utilization in July to a 51.36% utilization total for the end of the season . This moved it up to the NRCS 36-65% (moderate) utilization level.

Seco/Santa Rosa/San Luis Pastures

Results indicated that the control site for the Seco/Santa Rosa/San Luis pastures remained in the 0-15% (none) range for the entire season, while the Seco/Santa Rosa/San Luis pastures where about 230 head of cattle grazed went from a 11.67% mid-season utilization in July to a 22.69% utilization total for the end of the season. This moved it up to the NRCS 16-35% (light) utilization level.

Rincon Pasture

Results indicated that the control site for the Rincon pasture remained in the 0-15% (none) range for the entire grazing season, while Rincon pasture itself, where the 71 head of cattle grazed went from a 12.46% mid-season utilization in July to a 26.89%

utilization total for the end of the season . This also moved it up to the NRCS 16-35% (light) utilization level.

Posos Pastures

Results indicated that the control site for the Posos pasture remained in the 0-15% (none) range for the entire grazing season, while the Posos pasture itself, where 120 head of cattle grazed went from a 11.59% mid-season utilization in July to a 26.23% utilization total for the end of the season . This also moved it up to the NRCS 16-35% (light) utilization level.

The more extensive and rigorous data collection and studies of range health were conducted as part of the Science and Education Program's range condition monitoring.

Rainfall during the 2010 season was on average in terms of quantity. Based on data collected after the cattle had been removed from the Preserve, the forage utilization data for the cow-calf pairs showed that some areas within some the pastures had been grazed beyond the 40% goal.

For example, the east horse pasture, where 30 cows/calves grazed, showed a 94% utilization (2) the west horse pasture, where 23 heifers and one bull grazed, showed a 6% utilization (3) the Lake/Field traps, where about 117 yearling heifers and commercial cows were grazed did not contain any plots that were specifically monitored this year (4) the horse paddocks where 45 yearling bulls grazed, showed a 0% utilization (i.e., it grew back just as fast as it was being used). (5) Seco/Santa Rosa/San Luis pastures, where 214 cow/calf pairs and 13 bulls were kept during the grazing season, showed a 78%, 20%, and 62% at different plots within those pastures. (6) the Rincon Pasture, where 67 yearling heifers and 4 bulls grazed, showed 0%, 21%

and 39% utilization at plots within the pasture, and (7) the Posos where about 120 cow/calf pairs grazed, showed 10%.

For the entire Preserve, average production was 1631 lbs/acre. Field data collected at the end of the 2010 grazing season indicate that the 40% allocation goal was met for the Preserve as a whole, but not for some of the individual pastures. Table 2 shows the VCNP forage utilization data; all of 2010 data indicate utilization below the goal of 40%. Table 3 lists the average forage left standing after the livestock were removed for 2002-2010.

Table 2. VCNP forage utilization (based on ratios of biomass outside vs. inside exclosures from autumn sampling, after livestock have left the VCNP).

Average Forage Utilization (%)	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Grazeable Woodland (GW)	54.2	37.9	34.5	29.1	24.0	29.3	13.4	0.0	18.6
Mountain Valley (MV)	27.1	22.7	18.4	17.6	15.6	14.8	15.7	0.0	16.9
Mountain Meadow (MM)	19.1	30.2	41.0	19.8	14.3	20.8	26.9	0.0	14.9
Riparian (RR)	29.3	41.7	45.3	33.2	23.6	22.8	29.6	1.5	27.4
Overall Average Utilization:	**32.4**	**33.1**	**34.8**	**24.9**	**19.4**	**21.9**	**21.4**	**0.4**	**19.5**

Table 3. Average amount of forage (dead and live) left standing in autumn after livestock have left the VCNP. Units are lb/acre.

Summer Production (lb/acre)	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Grazeable Woodland (GW)	368	773	507	1076	1127	1674	1513	1319	931
Mountain Valley (MV)	767	914	906	1642	1577	1928	1952	1902	1367
Mountain Meadow (MM)	1236	1484	845	1433	2216	2368	1874	2922	2232
Riparian (RR)	1105	1093	946	1587	2249	2691	1646	2631	1992
Overall Average Production:	**869**	**1066**	**801**	**1435**	**1792**	**2165**	**1746**	**2193**	**1631**

Financial

During the 2010 grazing season, the number fluctuated slightly, but remained around 600 head of cattle. NMSU paid the Trust $13 per head a month ($52 total per head for the 4 month grazing season). This equated to a total return of $32,028 in grazing fees.

In summary:

- $13.00 per head a month ($52.00 per head for 4 month season)
- A total of roughly 600 head grazed
- **TOTAL**: **$32,028**

Conclusion and Recommendations

The total financial return for 2010 was slightly higher than in 2009 return because more head of cattle grazed on the Preserve. The 2010 cattle program was a success. The multi-faceted program benefited multiple cattle growers (including many local producers), limited the impacts to sensitive habitats, limited impacts and interaction with recreation programs, and provided a research component related to issues unique to high altitude cattle.

The Valles Caldera Trust seeks a cattle program that supports the long-term goals for the Preserve. The Valles Caldera Preservation Act foresaw continued management of the VCNP as a working ranch in both the purposes of acquisition and the goals set for management. Recently the Trust completed an environmental assessment (EA) regarding the "Multiple Use and Sustained Yield" of consistent with the act. The EA provided a framework of adaptive management to guide the Trust in the continued operation of annual programs for domestic livestock grazing.

There are several goals that need to be considered in developing a successful grazing program at the Preserve, and the 2010 program went a far way in meeting these goals. These goals include:

- The grazing program should provide the Trust with the greatest flexibility to respond to varying environmental and market conditions, to meet multiple goals and to incorporate an experimental management style that mixes elements of public and private administration.
- The program should be aimed at reducing our administrative costs and efforts.
- Operating smaller numbers of livestock, while at the same time seeking to develop programs that increase the revenue through other activities, might be a better long-term strategy for economic return. These activities could include a smaller numbers of higher value animals (such as the high elevation bull/heifer programs), fees and grants received for educational programs, conservation

stewardship programs, or even recreational fees associated with herding or other cowboy activities.

- The program should provide for the ability to respond to changing conditions, future development or changes on the Preserve, balance all the goals from the Act, and address the competing demands from the public.

Unfortunately, as has been the case in years past, trespass cattle continued to be a problem on the Preserve, mostly on the northern part of the Preserve. The fence is often cut throughout the grazing season and dozens of trespass cattle graze on the Preserve. Substantial effort was made to remove cattle off of the Preserve, or have the owners come retrieve their cattle, but continual cutting of the fence makes keeping trespass cattle off the Preserve a difficult task.

In summary, for a second year in a row, the 2010 grazing season conducted by NMSU was a success. The grazing program was able to meet all of the obligations spelled out in the service lease agreement and the group of participants was very cognizant of our unique circumstances in being both a working ranch and a public use and recreation Preserve. The cattle were contained in large pastures away from riparian areas and away from recreation programs. The cattle had a negligible impact on the recreation programs this year due to a concerted effort to keep cattle out of recreation areas. The program involved many local cattle growers, included an extension and research component, a conservation program which allowed the resting of tribal land, and for a second year, culminated in a successful on-site bull sale.